

**EUROPEAN AND MEDITERRANEAN PLANT PROTECTION ORGANIZATION
ORGANISATION EUROPEENNE ET MEDITERRANEEENNE
POUR LA PROTECTION DES PLANTES**

08- 14046
P PM point 7.2

Report of a Pest Risk Analysis for

This summary presents the main features of a pest risk analysis which has been conducted on the pest, according to EPPO Decision support scheme for quarantine pests.

Pest: *Eutypella parasitica* R.W. Davidson & R.C. Lorenz (1938)
PRA area: EPPO member countries
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STAGE 1: INITIATION

Reason for doing PRA: In July 2005, the NPPO of Slovenia reported that a new canker disease of maples (*Acer* spp.) caused by *Eutypella parasitica* had been discovered near Ljubljana. So far, this fungus was only known to occur in North America.

Taxonomic position of pest: Fungi, Ascomycota, Pezizomycotina, Sordariomycetes, Xylariales, Diatrypaceae

STAGE 2: PEST RISK ASSESSMENT

Probability of introduction

Entry

Geographical distribution: **Europe: Slovenia** (first find in Ljubljana in 2005; status in 2007: present at low prevalence - in central and eastern Slovenia, where *Acer* spp. are grown), **Austria** (first find in Sankt Veit an der Gölzen / Niederösterreich in 2007; status - absent: under eradication), **Croatia** (first find in north-western Croatia in 2007).
North America: Canada (present in Ontario and Quebec),
USA (present around Great Lakes, Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York State, Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, Vermont)

Major host plants or habitats: *Acer* spp.
Acer pseudoplatanus L. (sycamore maple), *A. platanoides* L. (Norway maple), *A. campestre* L. (field maple) and occasionally *A. negundo* L. (boxelder), *A. saccharum* Marsh. (sugar maple), *A. rubrum* L. (red maple), *A. saccharinum* L. (silver maple), *A. nigrum* Mich. (black maple), *A. pennsylvanicum* L. (striped maple), *A. saccharum* subsp. *nigrum* (Michx.) Desmarais., *A. cappadocicum* Gled. (Coliseum maple), *A. palmatum* Thunb. (Japanese maple).

Which pathway(s) is the pest likely to be introduced on: Plants for planting of *Acer* sp., raw wood of *Acer* sp., natural spread
Establishment

Plants or habitats at risk in the PRA area: *Acer* spp.
Information on the susceptibility of European *Acer* species is insufficient. We know that susceptibility of *Acer pseudoplatanus* and *A. campestre* is high; susceptibility of *A. platanoides* is low to medium.
Acer pseudoplatanus L. (sycamore maple), *A. platanoides* L. (Norway maple), *A. campestre* L. (field maple) and *A. negundo* L. (boxelder) were found infected in Slovenia; the susceptibility of other autochthonous species of maples (*Acer* spp.) in Europe is not known.
Other susceptible species of maples from North America (sugar maple – *A. saccharum* Marsh., red maple – *A. rubrum* L., and occasionally boxelder – *A. negundo* L., silver maple – *A. saccharinum* L., black maple – *A. nigrum* Mich., striped maple – *A. pennsylvanicum* L., *A. saccharum* subsp. *nigrum* (Michx.) Desmarais.) are planted in the PRA area as ornamental species.

During the survey in Slovenia two new hosts were identified that had not been reported: *A. cappadocicum* Gled.(Coliseum maple) and *A. palmatum* Thunb.(Japanese maple). All occurrences of the disease found in Austria are on *A. pseudoplatanus*. All occurrences of the diseases found in Croatia are on *A. campestre*.
These data suggest that all species of the genus *Acer* are probably susceptible to the disease but the degree of susceptibility is different.

Climatic similarity of present distribution with PRA area (or parts thereof): Similar ecoclimatic conditions exist in Central and Eastern Europe, Western Europe, Southern Europe (apart of Portugal and Spain, south Italy). The disease has been found in Slovenia, Austria and Croatia.
See Figure 1 for the Climate suitability of Europe for *Eutypella parasitica* establishment.

Characteristics (other than climatic) of the PRA area that would favour establishment: Hosts of *Eutypella parasitica* are plants of *Acer* sp., which are present in almost all Europe (apart of Portugal, southern and central part of Spain, Ireland, Norway, Sweden, Finland and Russia).

Which part of the PRA area is the endangered area: Broad areas of the Balkans, the Apennines, France, Central and Eastern Europe, Caucasus, Ukraine, Belgium, southern part of The Netherlands, north-western part of Germany. See Figure 2 for Predicted spread risk map for *Eutypella parasitica* in Europe.

POTENTIAL ECONOMIC CONSEQUENCES

How much economic impact does the pest have in its present distribution: The fungus can cause a reduction in wood production and losses of quality of wood (in particular when destined to the furniture industry), young trees may die out.

In North America where the disease is present an average of 2.5 % of maples are infected. However, there are sites with up to 40 % infected maples in a stand (French, 1969; Gross, 1984; Kliejunas

and Kuntz, 1974). In Ontario, stands had *Eutypella* canker on 7.4 % of the sugar maples and cankered trees had an average cull loss of 12.4 % total cubic volume and 49.2 % merchantable cubic volume (Gross, 1984).

Describe damage to potential hosts in PRA area: Infected young trees with fewer than 12 cm in diameter may die. Trees more than 12 cm in diameter seldom die and may live for many years with the canker enlarging in size with the host tree. After many years of disease development canker wound and stem malformation are produced. Bigger infected trees may break due to the strong wind. The fungus can cause a reduction in wood production and losses of quality of wood (in particular when destined to the furniture industry), young trees may die.

How much economic impact would the pest have in the PRA area: Expected damage in the PRA area can be equal or higher as it is already caused in Slovenia: two sites in Slovenia, where the oldest infections were found, had 2 % of infected maples. Nevertheless it is not known if other European maple species on which the disease has not been found yet are highly susceptible or not.

CONCLUSIONS OF PEST RISK ASSESSMENT

Summarize the major factors that influence the acceptability of the risk from this pest:

Estimate the probability of entry: Probability of entry is considered as medium. Plants for planting of *Acer* sp. present a medium risk. Wood of *Acer* sp presents a low to medium risk. Natural spread of the fungus presents high risk.

Estimate the probability of establishment: The probability of establishment is high due to natural spread. *Eutypella parasitica* is already established in Slovenia, under eradication in Austria, recently found in Croatia. Host plants are present and climatic conditions are favourable in majority of EPPO member countries. Results of monitoring in Slovenia show that pest is present in Slovenia more than 40 years and substantial impact on its maple hosts has not been recorded yet. Spread inside the infected area is slow. .

Estimate the potential economic impact: Due to the lack of information for the PRA area the potential economic impact was evaluated on the basis of Slovenian data. Average annual cut of all maple wood in Slovenia is 33,000 m³ (from 1995 to 2004). With the average price of 46 € per m³ and with the assumption that the disease incidence could be 5 % (diseased trees have in average 50 % merchantable wood) the expected financial loss due to the disease is 45,412 € per year. This financial effect of the disease is estimated as minor. Costs for implementation of control measures in the forest in Slovenia are more than 80,000 € per year. Quarantine measures for the disease management would significantly increase control costs and probably they would exceed economic and other impacts of the disease, especially due to the fact that the disease is latent in an early stage (plants for planting) and there is no effective method available for routine use to detect the latent infection.

Degree of uncertainty We can say with low uncertainty that the incidence of the disease at the area of origin (North America) is low, i.e. it occurs on average

2.5 % of maples.

Information on the susceptibility of European *Acer* species is insufficient. The susceptibility of *Acer pseudoplatanus* and *A. campestre* is known to be high and susceptibility of *A. platanoides* low to medium. The susceptibility of other European maple species is not known. Slovenian Forestry Institute is performing an experiment to test the susceptibility of some stated *Acer* species.

Until the susceptibility of European *Acer* species is not determined spread risk assessment is done with high uncertainty.

OVERALL CONCLUSIONS

Results of monitoring in Slovenia show that *Eurypella parasitica* is present in Slovenia more than 40 years and substantial impact on its maple hosts has not been recorded yet. Distribution of infected maples in Slovenia suggests that fungus is established there. Spread inside the infected area is slow.

Due to the natural spread (and the absence of symptoms during the first years of infection) the disease will ultimately spread into the areas with sensitive maples from infected area in central Europe. It is predicted, that the spread will be relatively slow, but certain and continuous. It could be slowed-down with control measures in the infected area, such as sanitary felling and proper disposal of diseased trees as a regular forest management practice (hygiene measures to place the canker wound facing the ground on the spot).

Two pathways could be officially controlled: plants for planting of *Acer* sp. and raw wood of *Acer* sp.. The main obstacle in official control of *Acer* plants for planting is latency of infection in first 5 – 7 years. Furthermore there is no effective method available for routine use to detect the latent infection in early stages.

Therefore, the prevention of spread of the fungus *Eurypella parasitica* is not likely, neither with official control of commodity nor control measures of natural spread.

Taking into account the status of the *Eurypella parasitica* in Europe is not likely to achieve eradication of the disease.

Due to the above mentioned reasons we believe that there is no need to proceed to the Stage 3: Pest Risk Management (for quarantine pest).

The temperature and moisture conditions over most of the European range of maples are suitable for growth and reproduction of the fungus (Johnson and Kuntz, 1979; Kliejunas and Kuntz, 1974; Lachance, 1971; Ogris *et al.*, 2006). The map showing the climate suitability prepared by Ogris *et al.* (2006) is presented below:

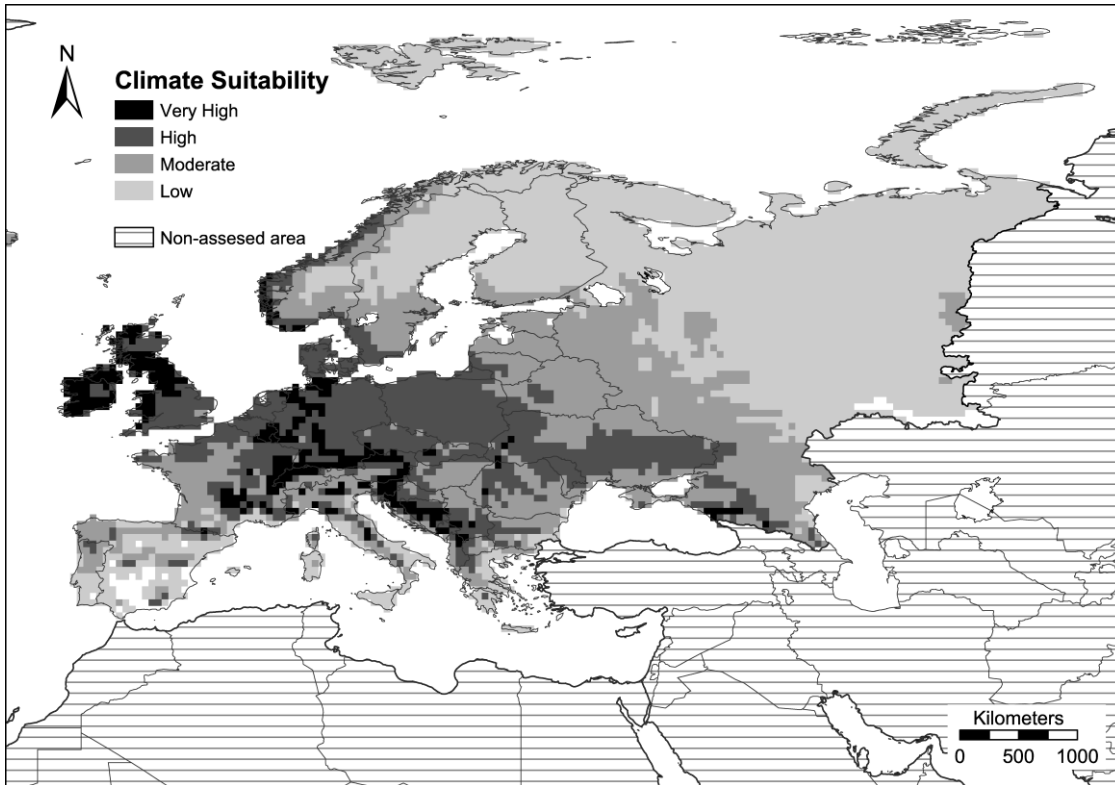


Fig. 1: Climate suitability of Europe for *Eutypella parasitica* establishment

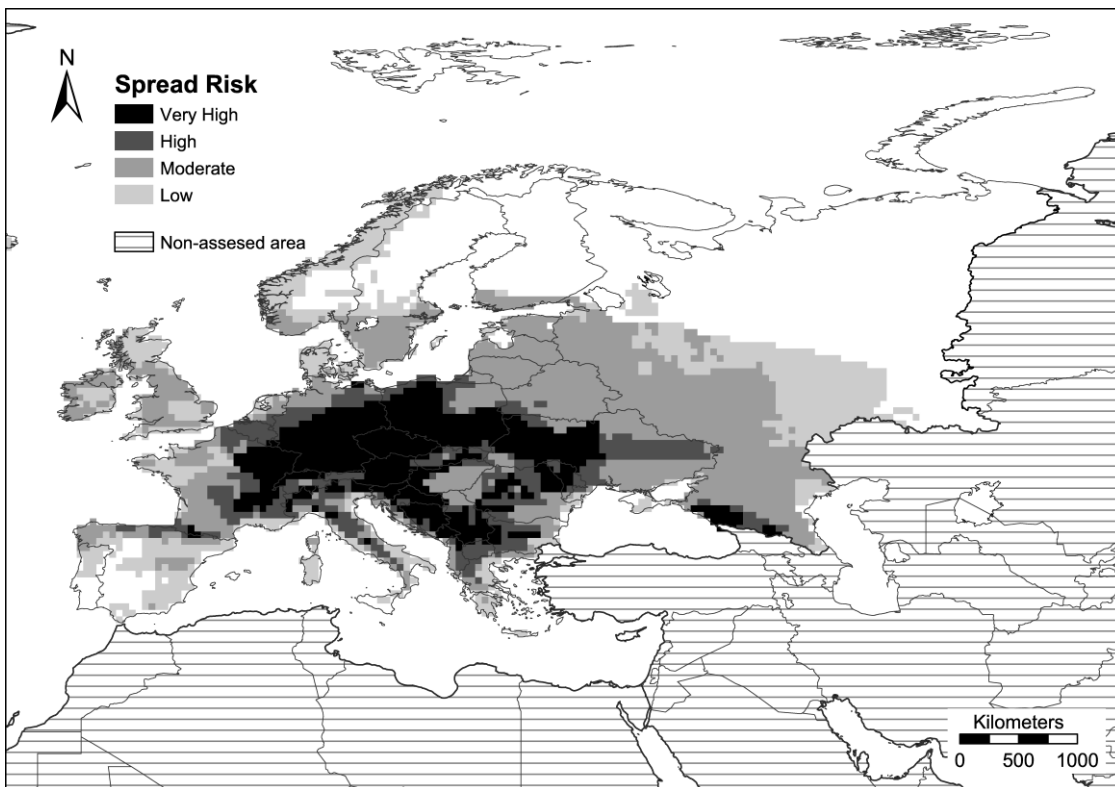


Fig. 2: Predicted spread risk map for *Eutypella parasitica* in Europe